

[METHOD OF FORMING A POLYSILICON LAYER]

Abstract of Disclosure

A surface of a semiconductor wafer has a first gate oxide area and a second gate oxide area. A first gate oxide layer and a photoresist layer are formed on the surface of the semiconductor wafer. A wet etching process is performed to remove the first gate oxide layer not in the first gate oxide area on the surface of the semiconductor wafer. The photoresist layer is then removed. After performing a wet cleaning process, a second gate oxide layer is formed on the surface of the semiconductor wafer. Finally, a two-step polysilicon deposition process is performed, the resultant polysilicon layer covering the first gate oxide area and the second gate oxide layer. The two-step polysilicon deposition process involves a first-step low temperature amorphous silicon (α -Si) deposition process, and a second-step high temperature polysilicon deposition process so as to avoid the formation of particles and defects when forming the polysilicon layer.